

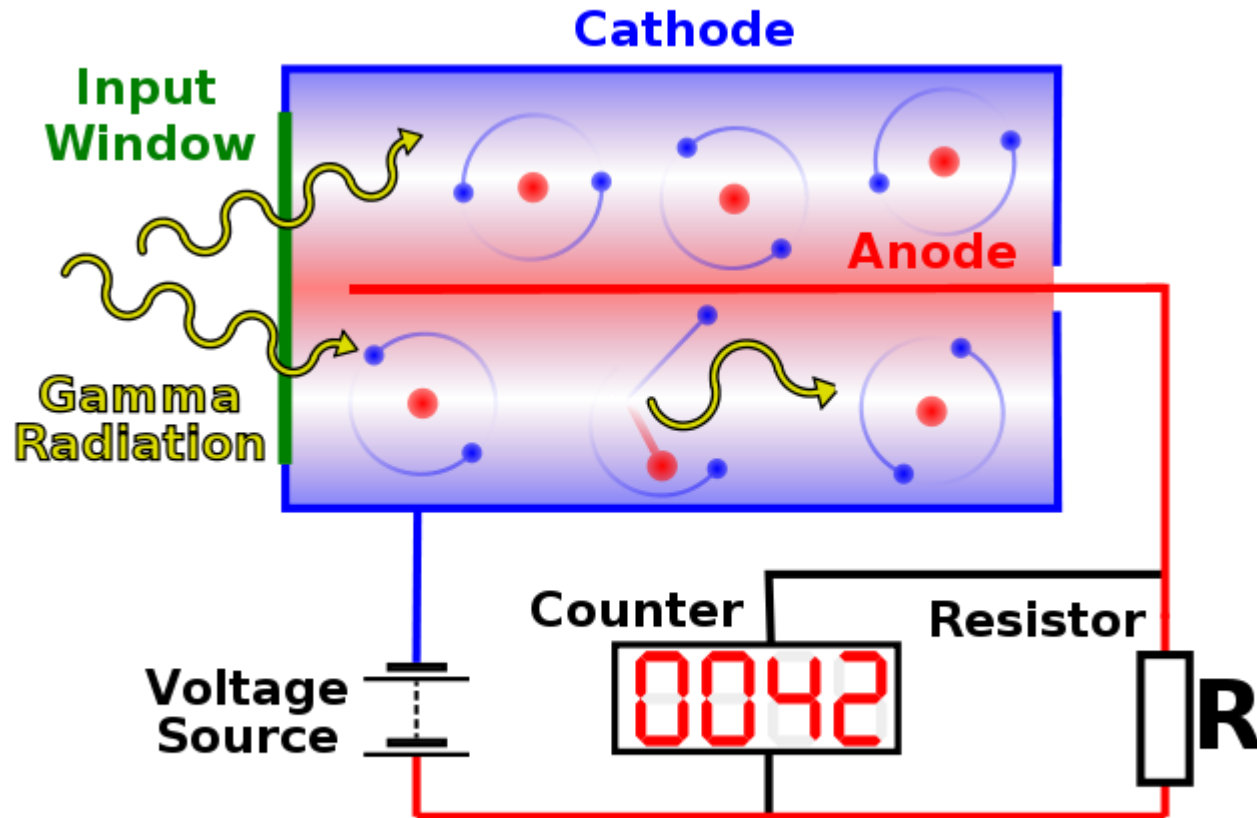
微處理機之危機處理 蓋格計數器

B97901121 劉彥廷

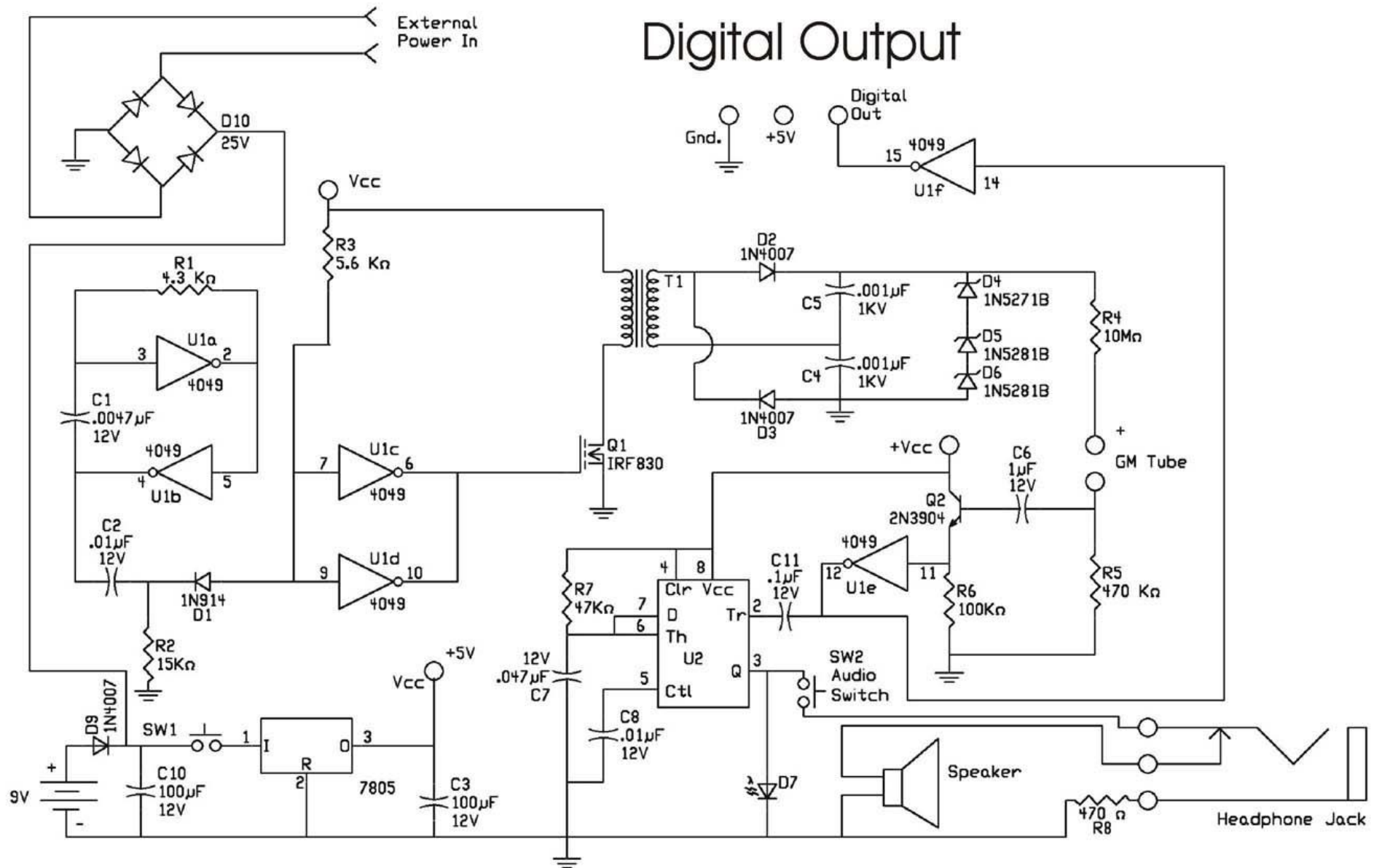
動機

- ▶ 日本福島電廠輻射外洩事件
- ▶ 可以透過微處理機監測輻射量值
- ▶ 提高核能電廠、醫院的放射性監測密度

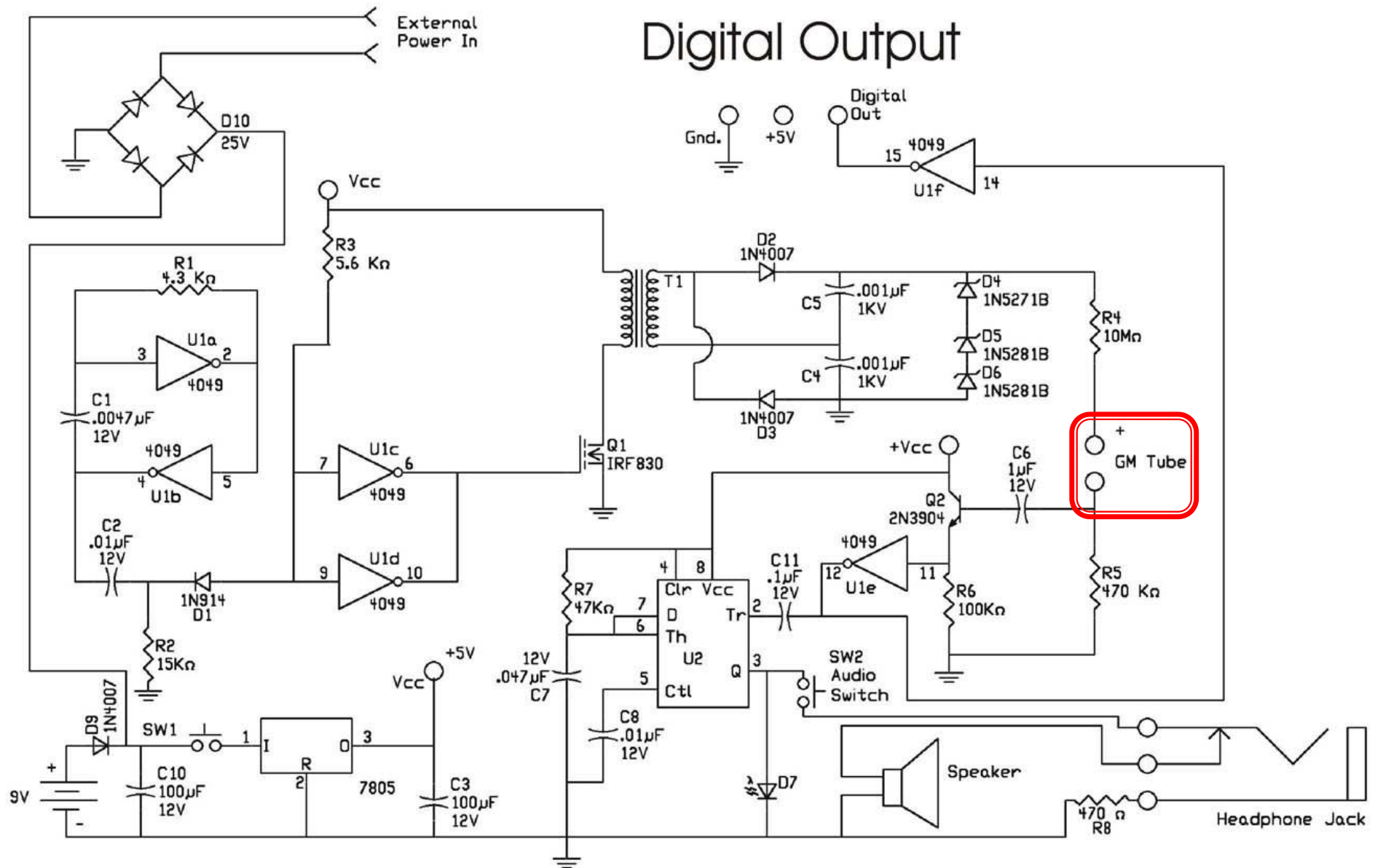
Geiger-Müller tube



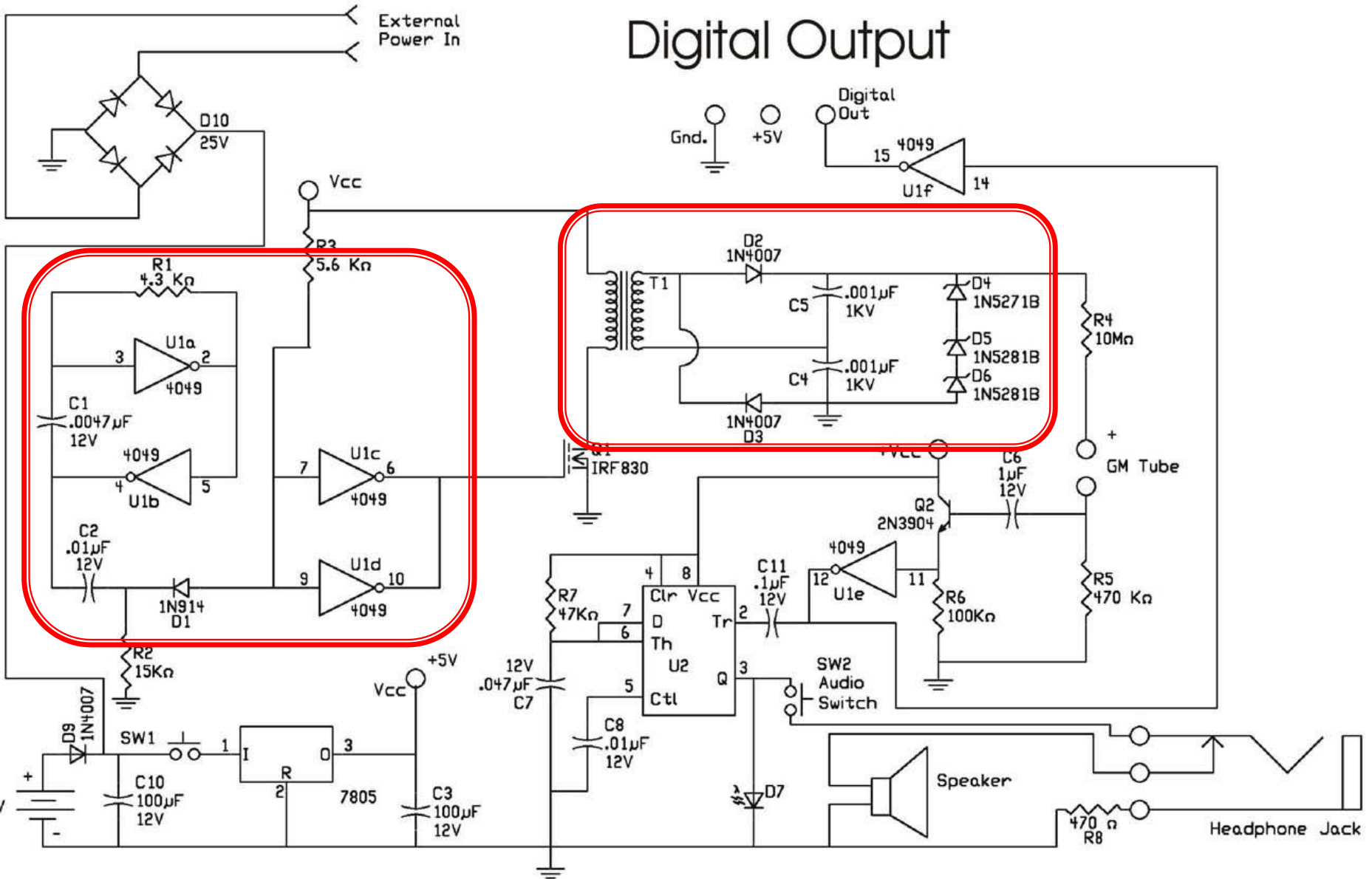
Digital Output



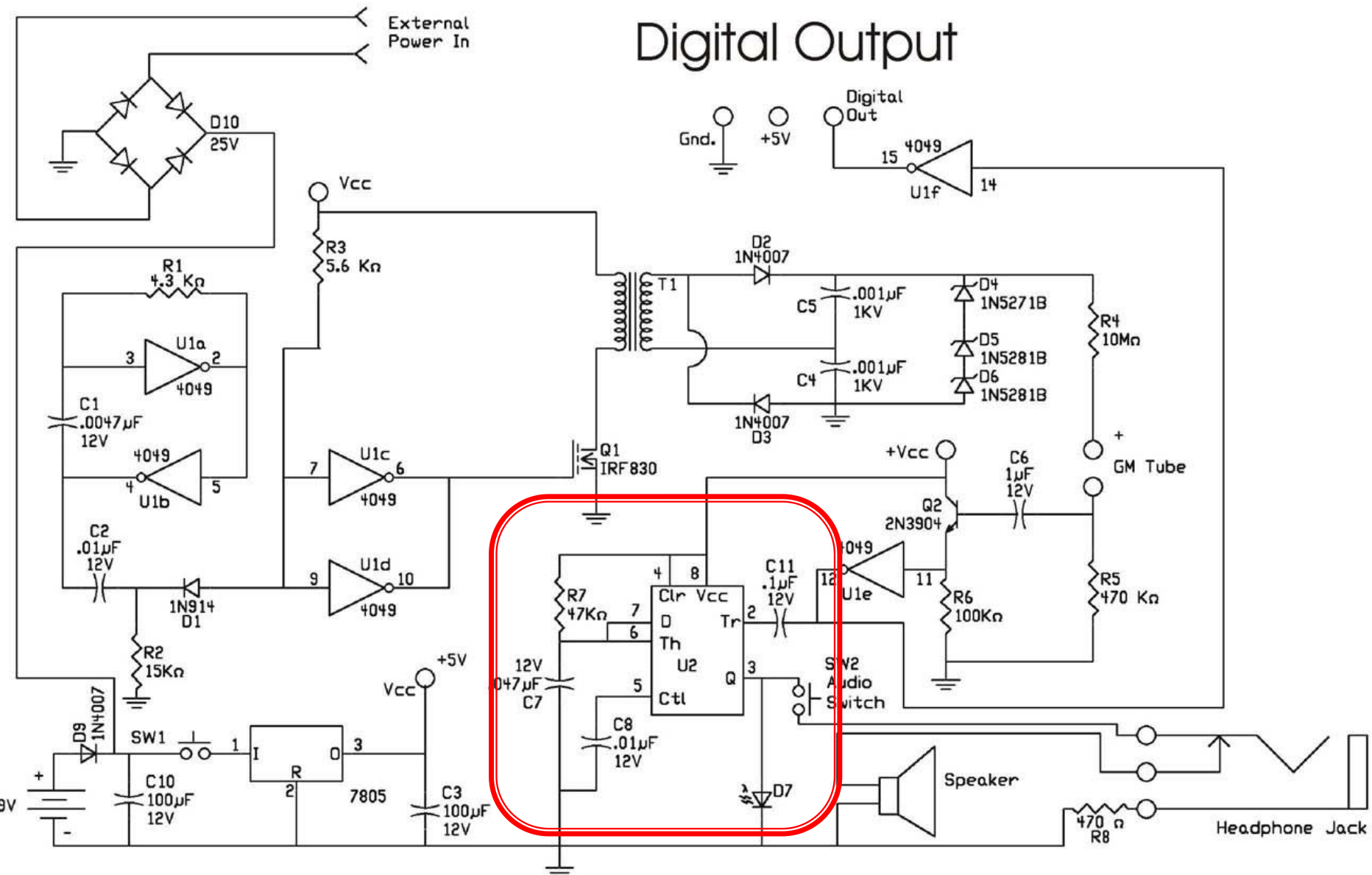
Digital Output



Digital Output

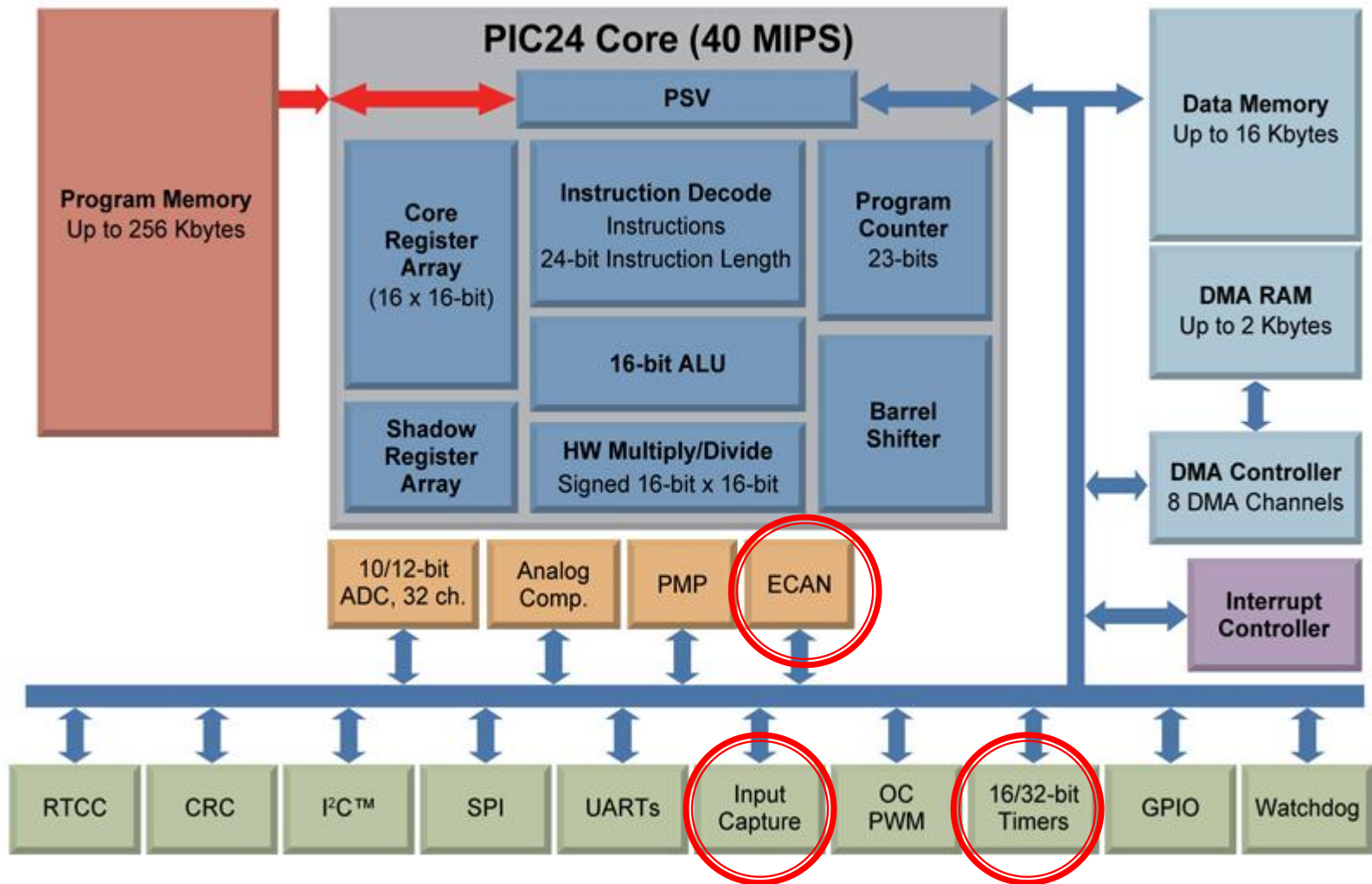


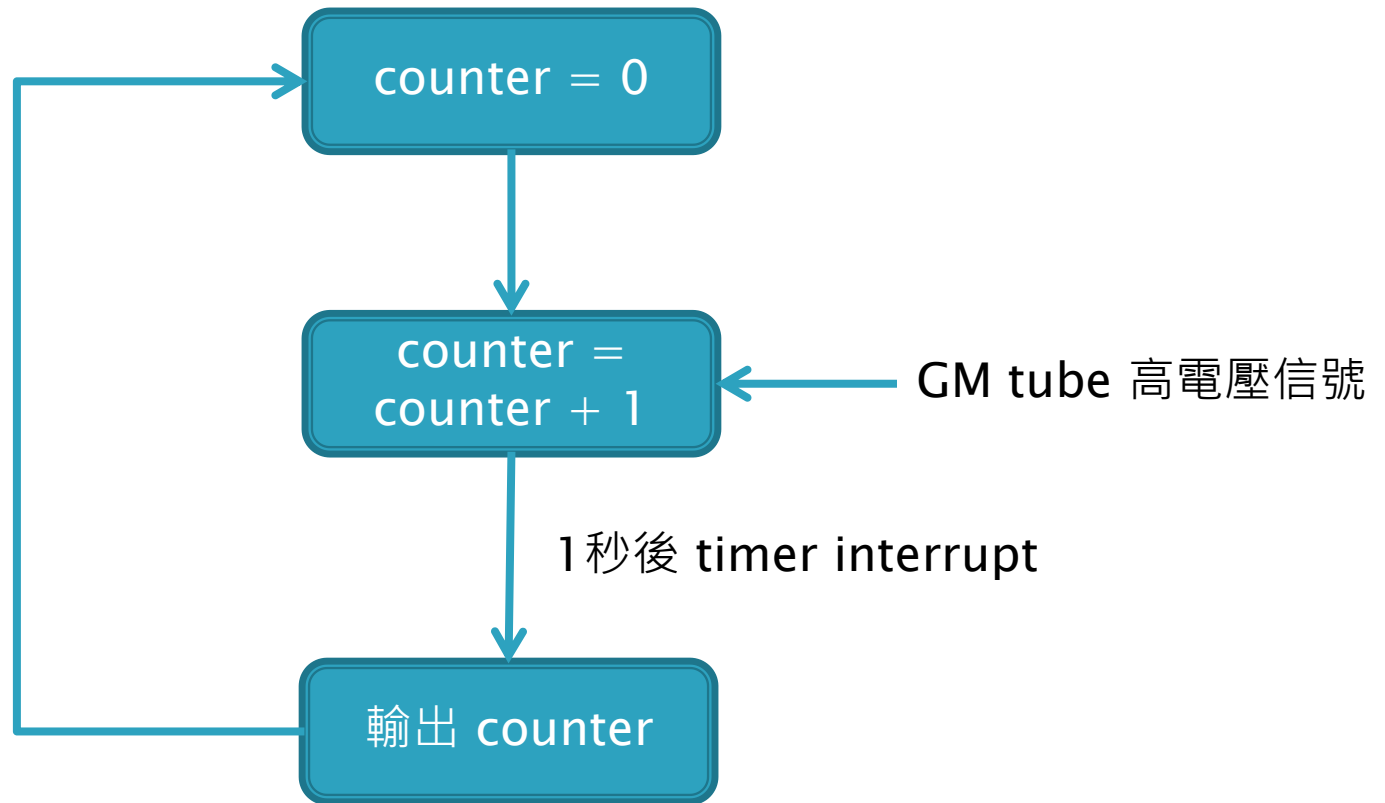
Digital Output



資料收集

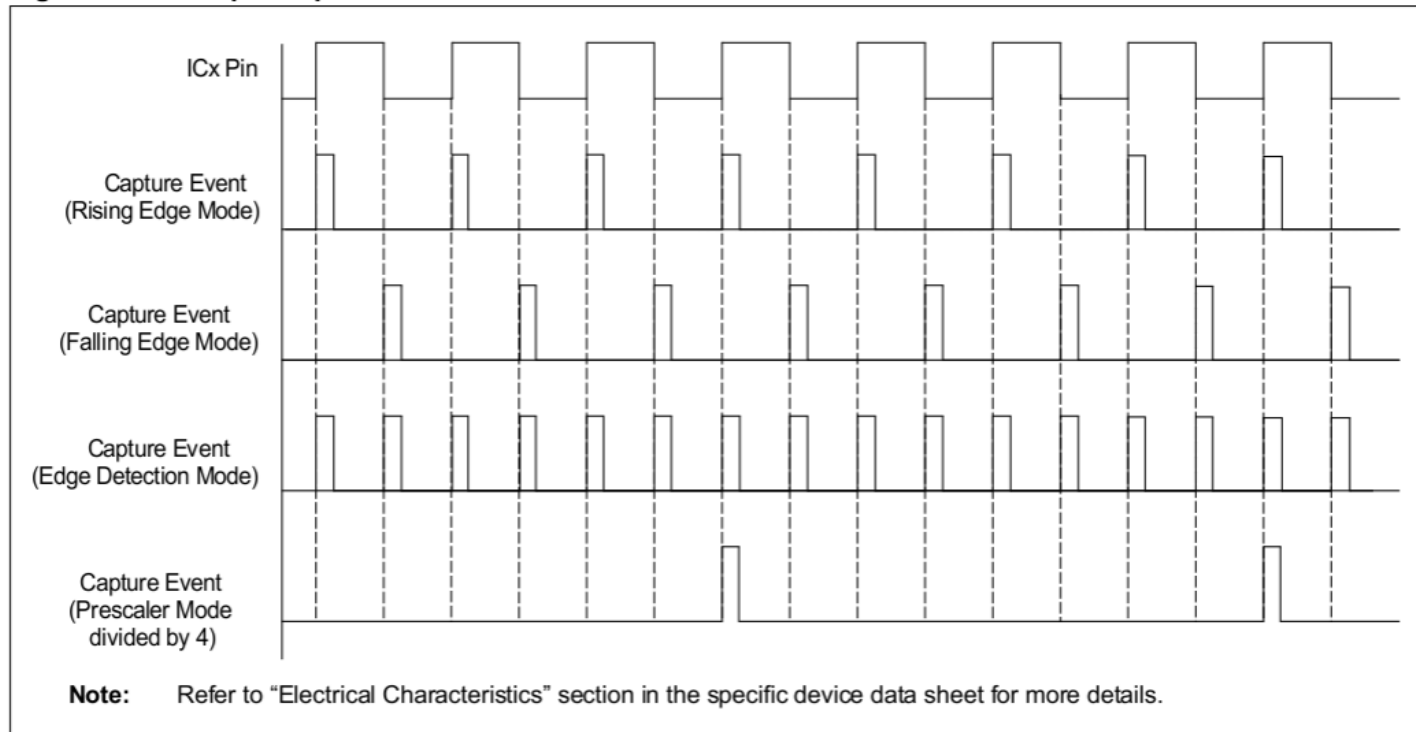
- ▶ 使用 PIC24 系列
- ▶ 利用 input pin 收集高電壓資訊
- ▶ 利用 timer 計算頻率
- ▶ 10000 counts/sec 即為危險劑量
- ▶ 利用 CAN bus 收集資訊





Input Capture

Figure 12-2: Input Capture Event Generation

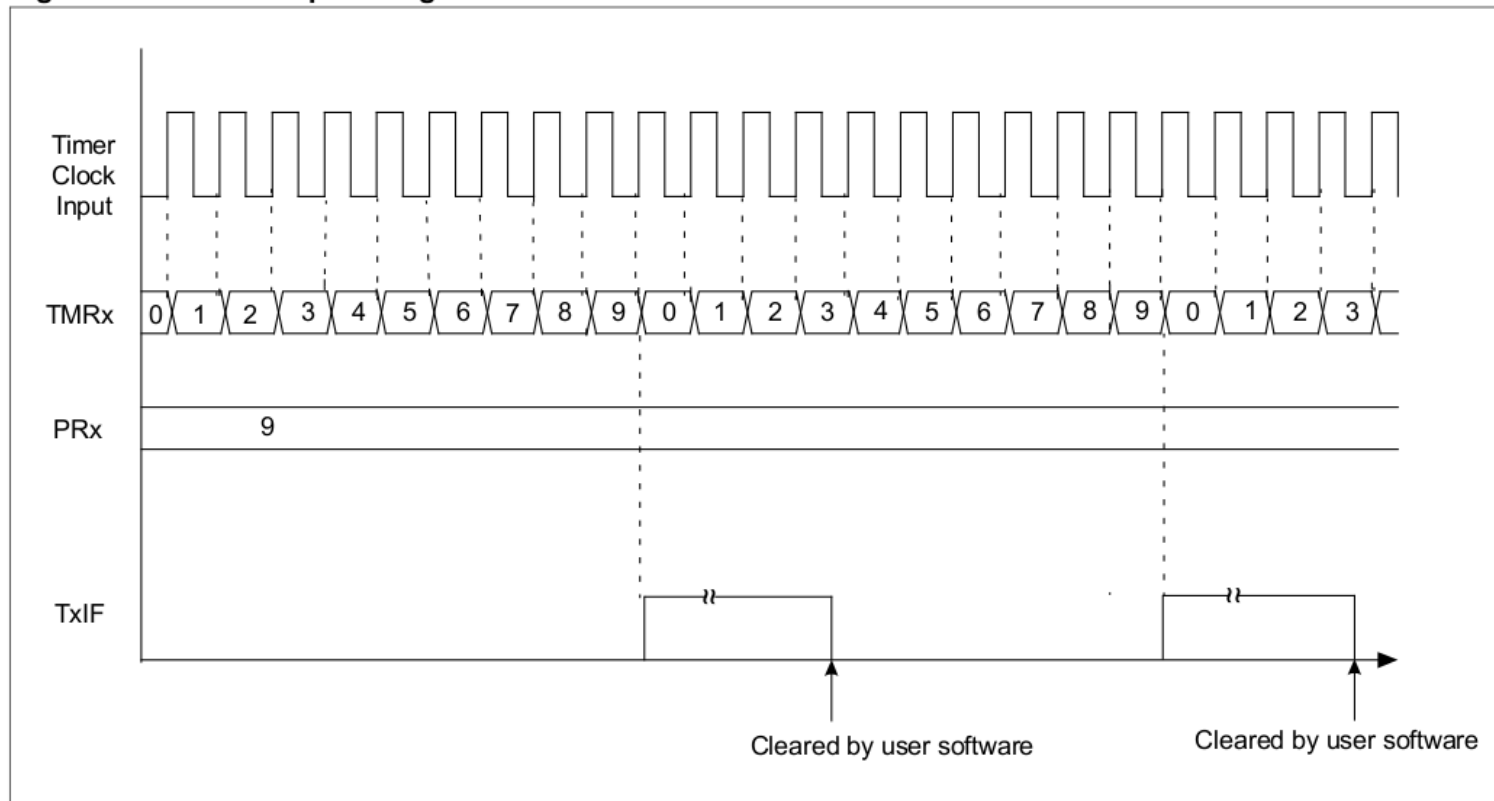


Note 1: The Input Capture (ICx) pin has minimum high time and low time specifications. Refer to the specific device data sheet for more details.

2: The latency from the time the transition happens at the ICx pin to the time the capture event is generated is two instruction cycles.

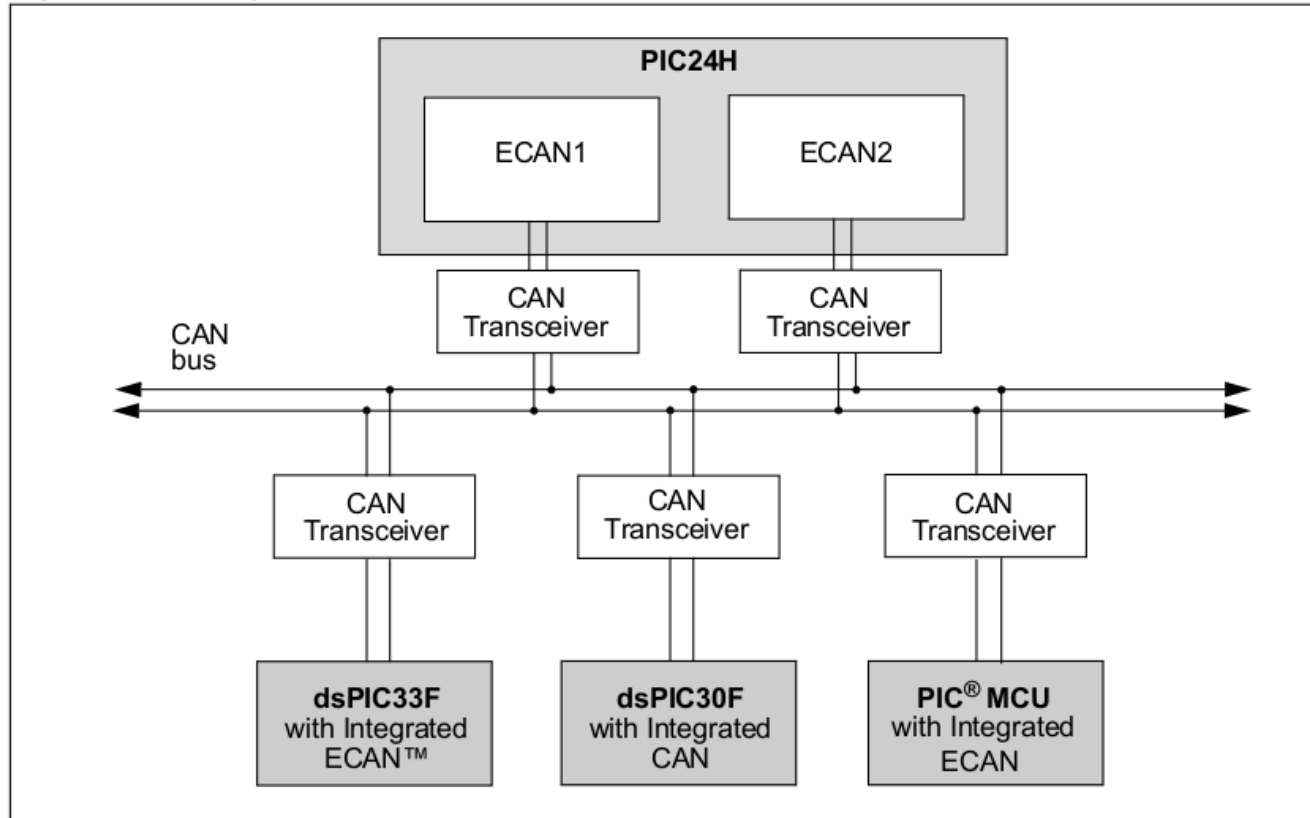
Timer Interrupt

Figure 11-4: Interrupt Timing for Timer Period Match



CAN

Figure 21-1: Typical CAN Bus Network



測試

Radioactive Sources



Sample radioactive sources for testing the functionality of a geiger counter. Safe, uncalibrated solid sealed sources are fabricated by depositing a license exempt quantity of activity in the well of a 1-inch diameter (25mm) by 1/8-inch thick (3mm) plastic disk. After drying, the well is filled with an epoxy material; sealing the radioactivity inside the source. Contains $\pm 20\%$ of the stated activity and are routinely compared to calibrated reference standards. Each disk is identified by radio nuclide, amount of activity, serial number and calibration date. The words "Caution - Radioactive Material" appear on the label

of each source.

These radioactive sources are dropped shipped from separate location.

Pb-210 Needle Cloud Chamber Source Contains Pb-210 $< 0.01 \mu\text{Ci}$

For More Radioactive Sources [Click Here](#)

CS-137 - \$80.00

Cs-137 Radioactive Source, 5 micro curie (μC) (gamma source)

S-7 - \$234.95

Set of Radioactive Sources: Po-210, .1 μC (alpha); Sr-90, .1 μC (beta); Co-60, 1 μC (gamma)

CS-137 \$80.00 ▾

Add to cart

